

## IN THE UNITED STATES PATENT &amp; TRADEMARK OFFICE

In re Application of  
Ammermann et al  
Serial No. 10/519,214  
Filed: December 27, 2004 as PCT International application  
For: Fungicidal Mixtures based on Dithianon

## DECLARATION

I, Egon Haden, Dr. agr., a citizen of the Federal Republic of Germany and residing at Römerstr. 1, 67259 Kleinniedesheim, Germany, hereby declare as follows:

I am fully trained agricultural engineer, having studied agricultural science at the Technical University of Stuttgart - Hohenheim, Germany, from 1975 to 1980.

From 1980 to 1985 I furthered my studies at the Institute of Plant Disease of the University of Hohenheim, and I was awarded my doctor's degree by the said university in 1985.

I joined BASF Aktiengesellschaft of 67056 Ludwigshafen, Germany, in 1984, and have since been working in the field of the characterization and screening of fungicidal substances, and am therefore fully conversant with the technical field to which the invention disclosed and claimed in application Serial No. 10/519,214 belongs.

I have read the Office Action and studied the application Serial No. 10/519,214 with particular emphasis on the comparative tests described in the Specification therein as Use examples I and II.

I confirm herewith, that these tests described in the Specification of application Serial No. 10/519,214 have been conceived according to the state of the art in this technological field. The methodology described is found suitable to prove synergistic action of mixtures according to Colby (S.R. Colby, Weeds 15, 20-22). The inventors used the scientifically well accepted and widely used Colby's formula (cf. Specification page 8, line 28) to determine the difference between the observed efficacy and calculated efficacy. It is common knowledge in this technological field that a higher observed efficacy as compared to the calculated efficacy is indicative for a synergistic action.

The test data provided in the Specification of application Serial No. 10/519,214 show that the observed efficacy was higher compared to the expected efficacy for both mixtures

(I + II-2 and I + II-4) within the range of ratios from 16:1 to 1:4 and against the tested fungal pathogens (Specification page 9-12, Examples 11-22, 33-41).

In screening of fungicidal substances, even small differences between observed efficacy and calculated efficacy are significant. This is particularly the case when a presumably small difference in efficacy results in a significant reduction of the observed fungal infection level compared to the infection level based on the calculated efficacy (presuming no synergistic action). Based on the efficacy data provided, the fungal infection level can be calculated using Abbot's formula (see Specification page 8, lines 10 to 16). To determine the fungal infection of the treated plants ( $\alpha$ ) based on the efficacy (E) and the fungal infection of untreated plants ( $\beta$ ) Abbot's formula must be converted to the following term:

$$\alpha = (1 - E/100) \cdot \beta$$

Applying this term of Abbot's formula to Example 36 (Specification page 12) which is an example with a presumably small difference between observed efficacy and calculated efficacy of 13, leads to the following calculation:

$\beta = 81\%$  (see Specification page 9, Table C, Example 23),

observed efficacy (E) = 88%  $\Rightarrow$  observed infection level  $\alpha = (1 - 88/100) \cdot 81\% = 9.7\%$

calculated efficacy (E) = 75%  $\Rightarrow$  expected infection level  $\alpha = (1 - 75/100) \cdot 81\% = 20.3\%$

Thus, Example 36 shows that the mixture (I + II-2) at the test ratio reduced the expected (calculated) fungal infection level from about 20% by a factor of 2 to the observed infection level 10%. This reduction is strong and regarded as a significant difference in the field of screening of fungicidal substances.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at 67056 Ludwigshafen, Germany, this 19<sup>th</sup> day of December, 2007.



Signature of Declarant